DISCUSSION OF THE AMENDMENT

All the claims, where applicable, have been amended by replacing "first inorganic compound layer" and "second inorganic compound layer" with -- first metal oxide layer-- and --second metal oxide layer--, respectively, as supported, for example, by Claims 8 and 24. Claims 6 and 22 have been amended to be consistent with the first-discussed amendment.

No new matter is believed to have been added by the above amendment. Claims 2, 3, 6-11, 13, 15, and 22-31 remain pending in the application.

REMARKS

Applicants thank the Examiner and the Examiner's supervisor for the courtesy extended to Applicants' attorney during the interview held August 25, 2010, in the above-identified application. During the interview, Applicants' attorney explained the presently-claimed invention and why it is patentable over the applied prior art. The discussion is summarized and expanded upon below.

The rejection of Claims 2-3, 6-11, 13, 15 and 22-31 under 35 U.S.C. § 103(a) as unpatentable over US 7,030,553 (Winters et al) in view of US 2003/0184688 (Kim), is respectfully traversed.

Applicants maintain all the arguments in traversal of the above rejection made in the previous response, which arguments are hereby incorporated by reference.

Above-amended Claim 2 is drawn to the following four features:

(1) an organic electroluminescent display comprising two or more device parts,

(2) a first organic EL device part comprising a first metal oxide layer above a light reflective conductive layer,

(3) a second organic EL device part comprising a first metal oxide layer and a second metal oxide layer above a light reflective conductive layer,

(4) the first metal oxide layer being different from the second metal oxide layer in ease in etching.

The two device parts are different from each other by one metal oxide layer or two metal oxide layers, or by the thickness of a part above the light reflective conductive layer.

(Above-amended Claim 3 is similar but it includes another organic EL device part that is not required to have any first or second metal oxide layer.)

Winters et al is drawn to an organic light-emitting device (OLED) comprising: (a) an array of light emitting pixels, each pixel including subpixels having organic layers including

at least one emissive layer that produces light and spaced electrodes, and wherein there are at least three gamut subpixels that produce colors which define a color gamut and at least one subpixel that produces light within the color gamut produced by the gamut subpixels; and (b) wherein at least one of the gamut subpixels includes a reflector and a semitransparent reflector which function to form a microcavity (column 2, lines 36-47). The Examiner relies on Fig. 3 therein, and particularly gamut subpixels 21b and 21a, which the Examiner analogizes to the first organic electroluminescent device part and second organic electroluminescent device part, respectively, of Claim 2. As Fig. 3 shows, the main difference between gamut subpixels 21a and 21b is that transparent cavity-spacer layer 140a in gamut subpixel 21a is thicker than the corresponding cavity-spacer layer 140b in gamut subpixel 21b. Winters et al discloses that the thickness and index of refraction of layer 140a are optimized in conjunction with the thickness and index of refraction of the organic EL media 210 in order to tune the cavity to resonate at the wavelength desired for the color of light for subpixel 21a, for example red (column 5, lines 57-63). Similarly, the thickness and index of refraction of layer 140b are optimized for the same reason except that it is done in order to tune the cavity to resonate at a different wavelength desired for the color of light for subpixel 21b, for example green (paragraph bridging columns 5 and 6). Thus, any difference between gamut subpixels 21a and 21b in Fig. 3 are due to differences in colored light wavelength. Winters et al discloses further that while in Fig. 3, the reflectors, such as 150a and 150b, form one electrode for the organic EL media 210, in an alternate embodiment, a separate electrode could be formed over the reflector and below the organic EL media 210, which then becomes part of the microcavity for the gamut pixels such as 21a and 21b, and this electrode could be constructed of a metal oxide (column 7, lines 51-57).

The Examiner relies on this disclosure to find that Fig. 3 suggests employing this alternative embodiment for only the second organic electroluminescent device part, i.e.,

gamut subpixel 21a. The Examiner analogizes this alternative embodiment as the presence of a second metal oxide layer.

In reply, and as Applicants' attorney pointed out during the above-referenced interview, the Examiner does not explain why the alternate embodiment disclosed by Winters et al would be used for only one gamut subpixel, but not for all of them. No motivation is provided therein. Indeed, the Examiner, in effect, agreed, as reflected in the Interview Summary for the interview.

Kim discloses selective etching in the formation of LCD pixels.

The Examiner holds that it would have been obvious to "for the height controlling layer of the electrode (the second inorganic compound layer of [Winters et al] to be more easily etched as taught by [Kim] so that the electrode can be selectively etched and form a pixel electrode of varying heights in a micro-cavity display device."

In reply, and as noted by Applicants' attorney during the interview, without the present disclosure as a guide, one of ordinary skill in the art would not have combined Kim and Winters et al, but even if combined, the result would not be the presently-claimed invention.

First of all, Applicants' attorney explained that it is not clear that one skilled in the EL device art faced with a problem therein would go to the LCD art for a solution. Nevertheless, the following discussion of Kim demonstrates how the present invention differs therefrom.

According to Kim, indium-tin oxide is selectively exposed to light so that a certain part is selectively changed to be crystalline and the remaining amorphous indium-tin oxide is selectively etched. Thus, contrary to the present invention in which different metal oxides are used, the crystalline indium-tin oxide and amorphous indium-tin oxide are different states of the same metal oxide. Indeed, Kim discloses a method wherein a single type of a metal oxide layer is selectively exposed to light and selectively etched. Specifically, a part 108a in Fig.

3B remains amorphous since it is not exposed to light and is easily etched, while a part 108b in Fig. 3B becomes crystalline since it is exposed to light and is hardly etched, as described therein at [0049]-[0051].

In contrast, the features of the present invention are (i) different types of metal oxides are stacked (features (2) and (3) above) and (ii) these two metal oxides are different from each other in ease in etching (feature (4) above).

If one skilled in the art were to apply the teachings of Kim to the device of Winters et al, a single type of metal oxide layer would be selectively exposed to light and the remaining non-exposed part would be selectively etched.

Kim actually teaches away from the feature of the present invention of using two types of metal oxide layers. On the other hand, the present invention uses two types of metal oxide layers. Specifically, the thickness above a light reflective conductive layer is adjusted by using the difference between the two metal oxide layers in ease in etching.

The control by light exposure disclosed in Kim is the control of whether or not a part can be etched, not the control of thickness which the present invention conducts.

The thickness cannot be delicately controlled by changing an amount of exposing light, an exposure time or the temperature of an acid.

For the Examiner's reference, the difference between the methods of the present invention and Kim is described below referring to drawings **attached herewith**, which difference was also explained by Applicants' attorney during the interview.

The method of Kim is shown in Figs. 1A to 1D, for example. An ITO layer 30 is formed on a layer 20 (FIG. 1A). Light is irradiated through a mask (FIG. 1B). Only the exposed part 30A is crystallized, while the non-exposed part 30B is not crystallized (FIG. 1C). Only the part 30B is removed (FIG. 1D). As stated above, Kim uses the difference in crystalline properties between the layers 30A and 30B of the layer 30.

In contrast, the method of the present invention is shown in the attached Figs. 2A to 2G, for example. A first metal oxide layer 30 is formed on a patterned light reflective conductive layer 20 (Fig. 2A). Thereafter, the layer 30 is etched and patterned (Fig. 2B). Next, a second metal oxide layer 40 is formed (Fig. 2C). After the formation of a resist film 50, the resultant device is exposed to light through a mask (Fig. 2D) and developed. Non-cured parts are removed and a cured part 50' remains (Fig. 2E). Further, the resultant device is etched and thereby an unnecessary second metal oxide layer 40 is removed. At that time, in the present invention, since the first metal oxide layer 30 is more difficult to be etched than the second metal oxide layer 40, a necessary first metal oxide layer 30 surely remains. Last, the cured part 50' is removed.

As stated above, the present invention uses a difference in ease in etching between different layers such as the layers 20 and 30, while Kim uses a difference in ease in etching between the same single layer such as the layer 30.

Claims 30 and 31 are separately patentable. The Examiner finds that Kim shows a layer comprising indium zinc oxide (IZO) as the more easily etched layer 108a [0048]. However, and as Applicants' attorney explained during the interview, [0048] shows a layer of indium tin oxide (ITO) to which zinc is added, i.e., indium tin zinc oxide (ITZO), not indium zinc oxide (IZO). Thus, Kim neither discloses nor suggests IZO.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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